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## —Survey Report—

# A Nationwide Survey on Education for Safe and Comfortable Drawing of Venous Blood in 4-Year Nursing Programs in Universities and 3-Year Nursing Schools in Japan

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### Summary

A survey on the contents of education for safe and comfortable drawing of venous blood was conducted among professors and teachers who were in charge of basic nursing technology in 4-year nursing programs in universities and in 3-year nursing schools all over Japan.

The findings were as follows: (1) On the contents for safe drawing of blood, ①preventions against accident or VVR(Vasovagal Reaction) ②aseptic operation, were the most and second large number of responses. (2) On the contents for comfortable drawing of blood, ① mental care ② safe and assured skills for drawing of blood were the most and secondary answers. (3) Most of institutes doing nothing in particular on the measure to fix and to keep the position of upper extremities of the patient. (4) It was suggested that the contents of education for drawing of venous blood being emphasized on safety in the nursing institutes were of immense importance.

**Keywords:** drawing of venous blood, education, safety, comfort, nationwide survey in Japan

### Introduction

In the education on the drawing of venous blood (hereafter, drawing of blood), safe and comfortable drawing of blood is very important. There have been no surveys reported on the contents of education programs for imparting the abilities required for safe and comfortable drawing of blood.

To determine how the safe and comfortable drawing of blood is taught in the nursing institutes, we conducted a nationwide survey on the contents of education programs for safe and comfortable drawing of blood in Japan. The subjects of our survey were professors and teachers who were in charge of basic nursing technology in 4-year nursing programs in universities and 3-year nursing schools. Here, we report the results of the survey.

In Japan, 4 year professional education is required in all of nursing programs in universities while 3 year system is adopted in some other countries. Hereafter, 4-year nursing programs in universities will be referred to as nursing programs in universities and 3-year nursing schools will be referred to as nursing schools, and when referring to both, the term, nursing institutes will be used.

### Methods

#### 1. Objects of the Survey

(1) Nursing Programs in Universities: The survey was administered to 145 professors who were in charge of basic

nursing technology in 145 nursing programs in universities all that had started in or before April 2006 in Japan.

(2) Nursing Schools: The survey was administered to teachers who were in charge of basic nursing technology in 145 nursing schools. The surveyed schools were selected by stratified random sampling from among the nursing schools that had started in or before April 2007. The number of surveyed schools in a region was equal to the number of nursing programs in universities in each of the following administrative regions: Hokkaido, Tohoku, Kanto, Chubu, Kinki, Chugoku, Shikoku, and Kyushu.

#### 2. Survey Method

Questionnaires were mailed to the participants with placement method, and the participants were requested to return the filled questionnaires by mail unsigned.

**3. Ethics for Research:** The participants were given the following information along with the questionnaire:

- (1) Filled questionnaires are to be returned unsigned; further, it is not necessary to mention the name of the respective nursing program and university or nursing school.
- (2) The received answers will only be evaluated statistically, and individual answers will not be identified.
- (3) The decision to answer is voluntary.
- (4) A reply received by mail will be taken as a sign of agreement to cooperate with the survey.
- (5) The questionnaires returned with answers will be used only for research purposes and will be scrapped after the completion of the research.

## Results

### 1. Contents of Education, with Special Emphasis on Safe Drawing of Blood (Figure 1)

Figure 1 shows the answers received to the question “What are major contents of teaching on which emphasis put for safe drawing of blood?” Free responses were sought to this question. All received answers were re-written, categorized, coded, and tallied. A selectable answer style questionnaire was not adopted. Free responses were sought,

and multiple answers were allowed.

The largest number of answer received to this question was “Prevention against the accident while drawing of blood or VVR (Vasovagal Reaction)” (101 [57.1%] respondents), followed by “Aseptic operation” (88 [49.7%] respondents), “Proper injection point, method and fixing of injector” (59 [33.3%] respondents), and “Proper selection of blood vessel” (52 [29.4%] respondents).

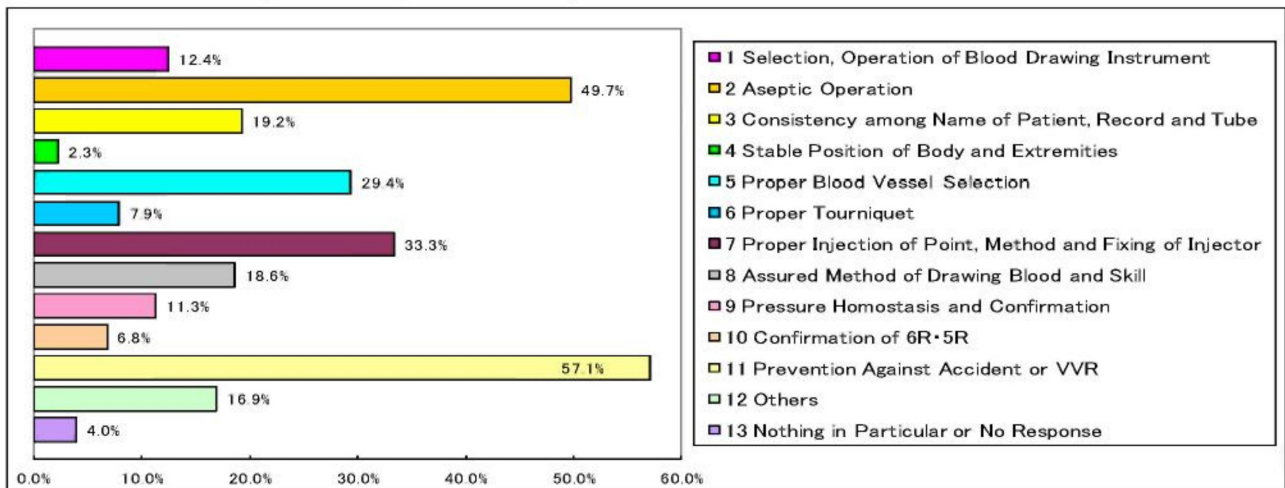


Figure 1. Contents of Education, with Special Emphasis on Safe Drawing of Blood (Multiple Answers)

### 2. Contents of Education, with Special Emphasis on Comfortable Drawing of Blood (Figure 2)

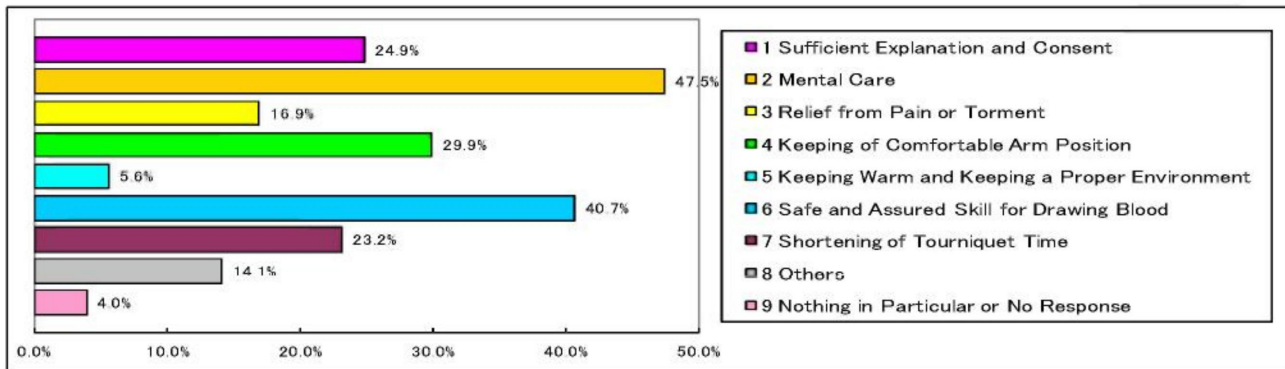


Figure 2. Contents of Education, with Special Emphasis on Comfortable Drawing of Blood (Multiple Answers)

Figure 2 shows the answers received to the question “What are major contents of education on which emphasis put for comfortable drawing of blood?” Free responses were sought to this question. All received answers were re-written, categorized, coded, and tallied.

The largest number of answer received to this question was “Mental care” (84 [47.5%] respondents), followed by “Safe and assured skill for drawing of blood would link to be comfortable” (84 [40.7%] respondents), “Keeping of comfortable arm position” (53 [29.9%] respondents), “Sufficient explanation and to get consent” (44 [24.9%]

respondents), and “To shorten the period for tourniquet” (41 [23.2%] respondents). The number of answers received to this question was smaller than that of answers received to question 1.

### 3. Measures Taken to Fix and to Keep the Position of the Upper Extremities of the Patient (Figure 3)

Figure 3 shows the answers received to the question on “Measures taken to fix and to keep the position of the upper extremities of the patient” for which free responses were sought. All received answers were re-written, categorized, and coded; the answers were then tallied in a manner similar



to that applied for tallying the answers received to questions 1 and 2.

The main answers received to the above question were “To keep a stable and comfortable position” (40 [22.6%] respondents), followed by “To adjust arm position by using towels or bath towels” (26 [14.7%] respondents), and “Extension of the elbow joint” (23 [13.0%] respondents).

The largest number of answer was “Nothing in particular” and some did not answer this question (43 [24.3%] respondents). Answers “Arm down, Point of drawing blood in one of upper extremities lower than the heart” were (12 [6.8%] respondents, these were duplicated respondents). There were some who answered as “not to be understood the meaning of question”.

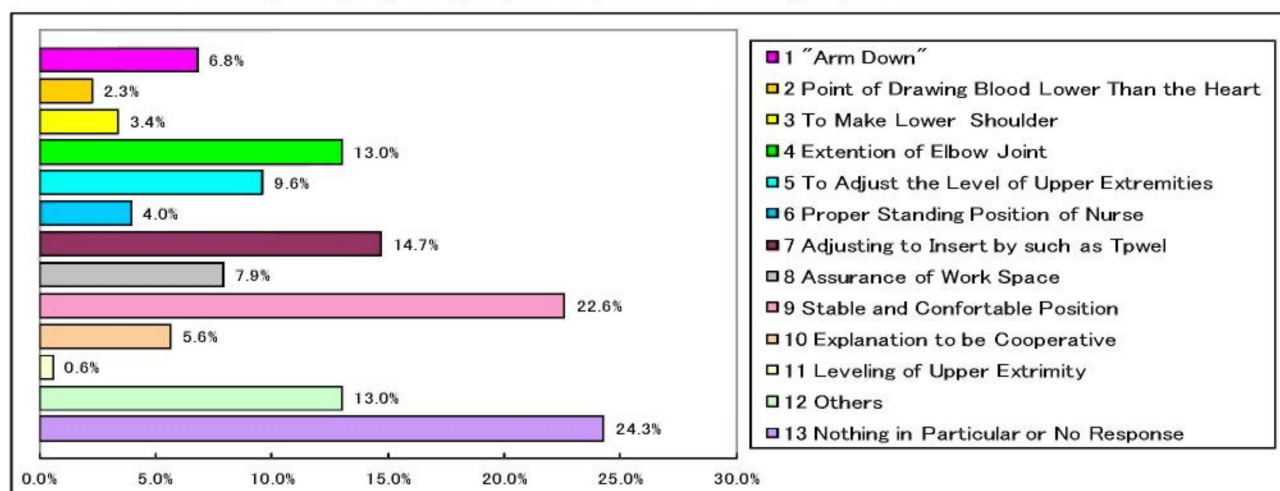


Figure 3. Measures Taken to Fix and to keep the Position of the Upper Extremities of the Patient (Multiple Answers)

## Considerations

### 1. Methodology of Research

To obtain more accurate survey results with a higher return rate and fewer invalid replies and blank answers, we assured all the participants that the report of the survey results would be sent back to them. As a result, we considered that the survey data extremely accurate, and the survey was completed with a response rate as high as 61%. There were no invalid replies, and there were very few blank answers, even for the free-response-style questions. The report<sup>1)</sup> on the survey results was sent to all 290 subjects, including those who did not reply.

At the initial stage of questionnaire development, we considered presenting all questions as multiple-choice questions to minimize the blank answers and to achieve a higher response rate. However, since there has been no previous research on questionnaire development in this field, the questions on “Contents of education with special emphasis on safe drawing of blood, (Figure 1)” and “Contents of education, with special emphasis on comfortable drawing of blood (Figure 2)” were set to free-response style.

It had been also considered that all (sample) answers would have been possibly selected if sample answers would have been prepared and multiple answers were permitted, since all respondents were instructors in charge of basic

nursing technology. Some of answers seemed to be copied from textbooks on basic nursing technology, as a result.

We also adopted the free-response style for the question on “Measures taken to keep and to fix the position of the upper extremities of the patient (Figure 3)”, because we could not predict any answers since no previous research was found and few textbooks addressed this topic.

### 2. Results

A nationwide survey on the contents of education for safe and comfortable drawing of blood in nursing institutes was conducted for the first time in Japan.

The following findings were obtained about the contents of education for safe and comfortable drawing of blood in the nursing institutes:

- (1) Evaluation of the answers received to the question on “Contents of education, with special emphasis on safe drawing of blood” revealed that major answers of were “Preventions against accident or VVR”, “Aseptic operation”, etc., and the responses to the question on “Contents of education, with special emphasis on comfortable drawing of blood” were “Mental care”, etc. We found that these were the standard answers given in textbooks on nursing skills.
- (2) We were most eager to know responses to the question on “Measures taken to fix and to keep the position of the upper extremities of the patient”; however, the largest number of respondents replied as “no answer” or “not to be

understood the meaning of question”.

Recently studies have reported “Arm down, Point of drawing blood in one of upper extremities lower than the heart” to be very important for safe drawing of blood. However this answer was given by only 12 among 177 responses.

Very few respondents from nursing institutes in which vacuum blood collection tubes were used, answered “Arm down” or “Point of drawing blood in upper extremity lower than the heart”.

Accidents that the collected blood flowed back into the vein have occurred many times with vacuum blood collection tube. In the past several years, guidelines for safety management for prevention against such accidents have been issued by “Japanese Society of Environmental Infection” and “Japanese Association of Medical Technologists (JAMT)”<sup>2-6)</sup>.

However, many textbooks on basic nursing technology do not describe these important issues on the safety of drawing of blood.

It was clarified afresh that contents of education how the abilities required for safe drawing of blood to be imparted in the nursing institutes were of clinical importance, since nurses conduct drawing of blood in medical institutions or health care institutions as the professionals in many cases<sup>2-7)</sup>.

### 3. Importance of this Research and Suggestions for the Future

No survey had been performed on the contents of education for imparting the abilities required for safe and comfortable drawing of blood in nursing institutes in Japan.

The findings of our survey were of immense importance since this is the first survey on the content of education for safe and comfortable drawing of blood with being obtained 177 valid replies from nursing programs in universities and nursing schools across Japan.

We plan to perform comparisons and analysis between the contents of education conducted by nursing programs in universities and nursing schools for imparting abilities required for drawing of blood in the near future, which will provide new findings.

### Conclusion

The survey was conducted on the contents of education for safe and comfortable drawing of venous blood, and it was targeted at 4-year nursing programs in universities and in 3-year nursing schools all over Japan. The findings were as follows:

(1) As the contents of education for safe drawing of blood, preventions against accidents occurring upon drawing of blood were the most. Mental care was the approach adopted in the most nursing institutes as the contents of education for comfortable drawing of blood. (2) Most institutes did not care about the measure for fixing and keeping the position of the upper extremities of the patient while drawing of blood. The findings suggested a need to establish the safety aspect in the contents of education for drawing of blood in nursing institutes in Japan.

### Acknowledgement

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